Impact of NSF-II

The *Goals* Model Ghana Application

Ghana AIDS Commission

"Working Actively and in Partnership to Combat HIV/AIDS"

November 2006

Understanding the impact of interventions on key indicators

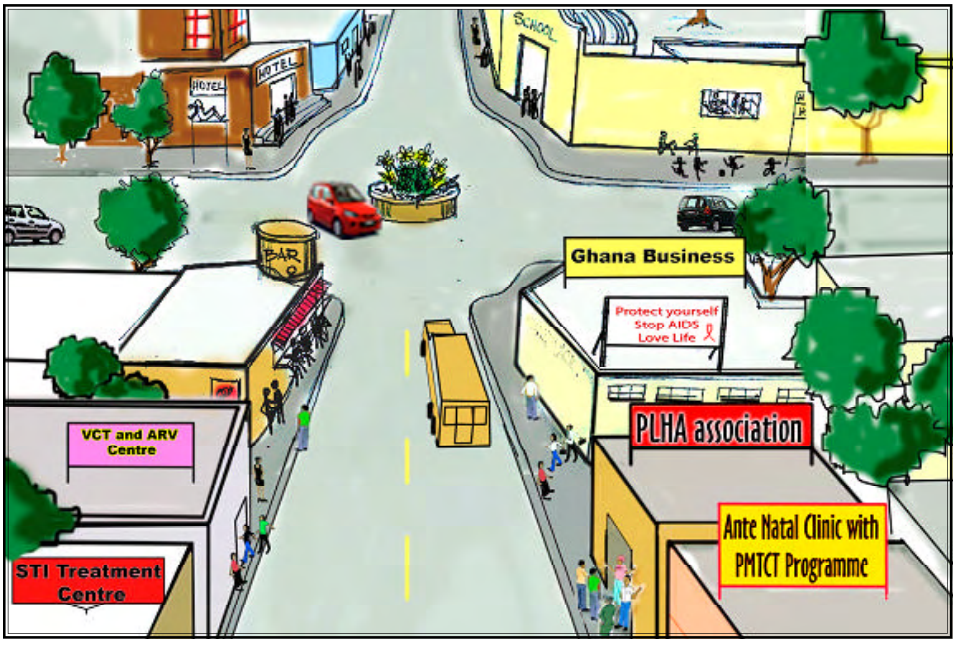
Context and Background

Millions of dollars are spent annually in Ghana to prevent HIV infection, without a thorough understanding of the most effective way to allocate these funds. The *Goals* Ghana Application was developed to estimate the impact of budget decisions on the achievement of HIV/AIDS program goals, to estimate reductions in HIV incidence, to understand resource allocation between prevention and care programs, and to help set priorities for high-risk populations and for the development of the annual program of work over the life span of the National Strategic Framework 2006-2010 (NSF-II).

In 2006, only $52 million have been commited to HIV/AIDS based on the annual program of work. If this current commitment for 2006 is maintained at the same level for the remaining four years, the total resource gap will reach about $272 million for the period 2006-2010.

What is the impact of scaling-up toward universal access on key HIV/AIDS indicators? If additional resources from current commitments are not mobilized, will it make a difference? If it does make a difference, what should be the priorities, and which interventions are the most important?

The *Goals* Model was utilized in Ghana to answer these questions.



Impact of Future Intervention Efforts

No national program would ever limit itself to a single intervention. But if there were enough funds to do just one, regardless of the social inequities resulting from such a strategic choice, which interventions would give the highest return on investment?

For prevention directed at priority populations, the intervention with the most impact is peer to peer education among sex workers while the least rewarding is peer to peer education for youth out-of-school.

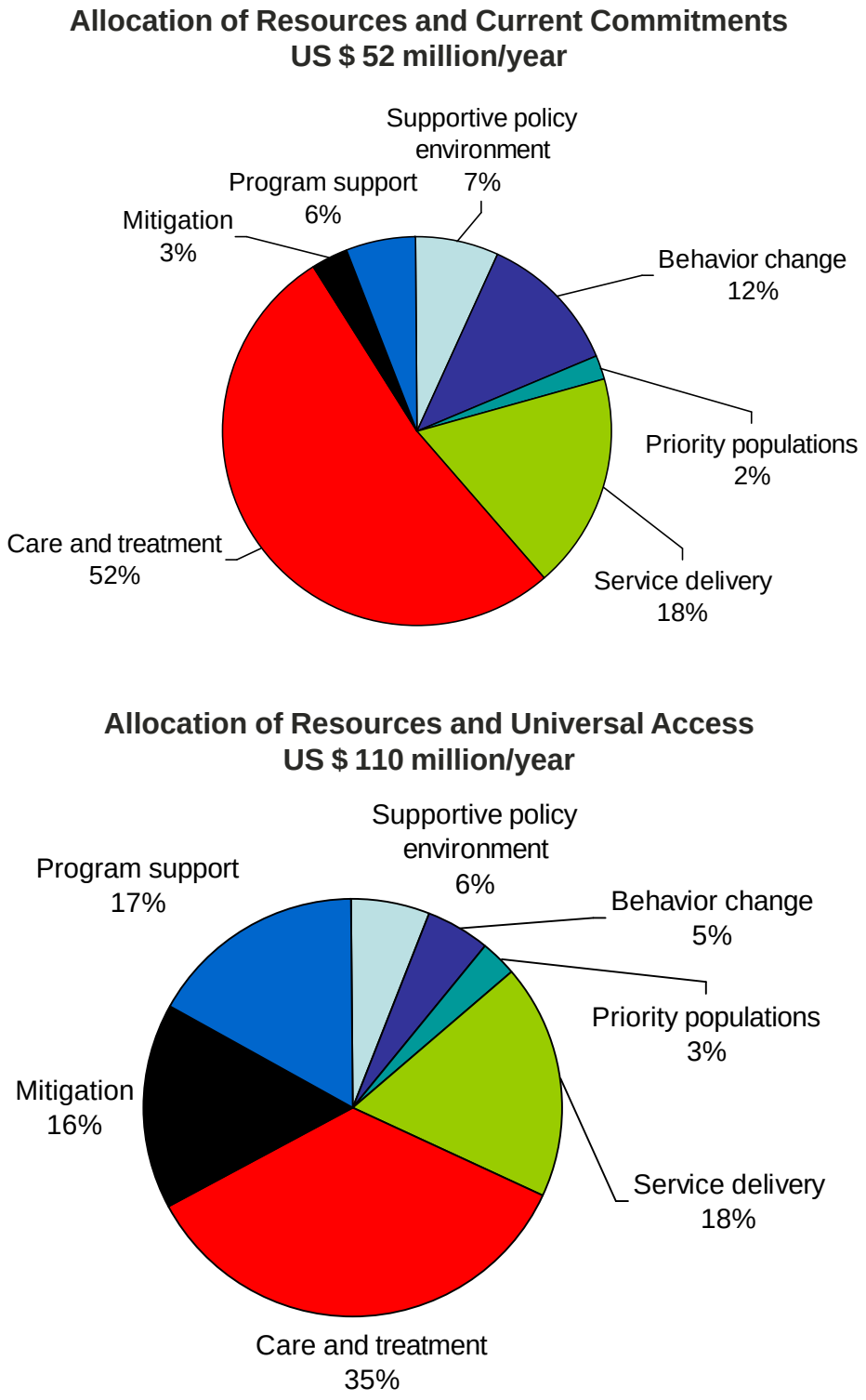
For service delivery, the interventions with the most impact are condom provisions and treatment of STI while the least rewarding are VCT and mass media.

If Ghana is able to mobilize all the resources needed to fully implement NSF-II, then perhaps resource allocation is not an issue as the program scales up toward universal access to reach the Millennium Development Goals.

However, with limited resources, which is currently the case in Ghana, resource allocation decision making is critical. As a result, targeted interventions are the most effective approaches, for they avert the largest number of infections at considerably lower unit cost per infection averted.

To understand the impact of interventions on key indicators, the universal access and the current commitment scenarios are presented below.

Figure 1: Allocation of Resources per Current Commitments and Universal Access



Process of the Ghana application

The Ghana Goals Application is a follow-up to the Resource Needs Model (RNM) application, which was developed by the Ghana AIDS Commission in June 2006.

RNM and GOALS were implemented by a multi-disciplinary team composed of participants with various areas of expertise (demography, epidemiology, health finance, planning) representing different aspects of society (government, civil society, private sector, donors).

The Goals Model requires a wide variety of inputs, including detailed information about the strategic plan to be analyzed, data regarding sexual behavior by risk group, demographic data, base year human capacity, and assumptions about types of care and mitigation activities that will be provided.

The Goals Model can help planners understand how funding levels and patterns can lead to reductions in HIV incidence and prevalence and improved coverage of treatment, care, and support programs. It does not, however, calculate the "optimum" allocation pattern or recommend a specific allocation of resources among prevention, care, and mitigation.

A data instrument was developed in Ghana to collect country- and program-specific information. Standard values based on international experience were used if local information was not available.

A technical team worked together to implement the models, which were used in interactive workshops with planners and stakeholders to explore the effects of different program configurations on the provision of care and support and the prevention of new HIV infections.

Through this interaction, participants agreed on targets for Universal Access and gained a better understanding of the dynamics of funding and impact. The exercise prepared them to develop realistic budgets and goals that reflected their priorities.

It should be noted that when trying to provide high-quality HIV/AIDS services, political, legal, and ethical considerations sometimes take priority over economic issues in determining the most cost-effective resource allocation pattern.

Designing and incorporating an HIV/AIDS program into strategic plan goals is a complicated process requiring skilled and dedicated personnel, appropriate technologies, legislation, infrastructure, and adequate funds.

Limitations

There are several limitations to this analysis.

First, the Ghana AIDS Commission has targeted prevention efforts toward specific priority populations: youth-focused interventions, sex workers and their clients, workplace, prisoners, migrant workers, truckers, uniformed services, and refugees.

While the *Goals* Model specifically measures the impact of intervention efforts on key populations, mainly sex workers and their clients, men who have sex with men, youth, and formal sector employees, it does not directly measure the impact of interventions on the other groups mentioned above.

Nevertheless, since these groups interact with priority populations, they indirectly benefit from intervention efforts and are exposed to mass media and other essential services. Therefore, the impact of changes in their behavior is indirectly captured in the combined interventions.

Second, the number of infections averted is benchmarked against a "no-funding" scenario. In reality, current intervention efforts do lead to current infections averted. Therefore, the number of infections averted presented in this analysis is much lower if measured against current efforts. Unfortunately, these numbers are not known.

Third, the model assumes that in the absence of funding to support a national program, people will change their behavior for the very worse, i.e., they will not seek STI treatment or use condoms even when engaged in high-risk sexual contacts. As a result, HIV prevalence drastically increases, which is not necessarily the case.

Fourth, although *Goals* can be used to show how the distribution of funds will affect HIV/AIDS prevalence and coverage, it does not imply that program goals can be achieved merely by allocating funds.

Fifth, the infections averted calculation is underpinned by an implied behavior change. In other words, the increased level of behavior change (for example, the percentage of condom use that is required in year 1, year 2, etc., of the strategic plan) must accompany the increased program coverage to achieve the impact defined by the infections averted calculation in the model.

Figure 2: New Infections by Group in the Absence of Funding for NSF-II

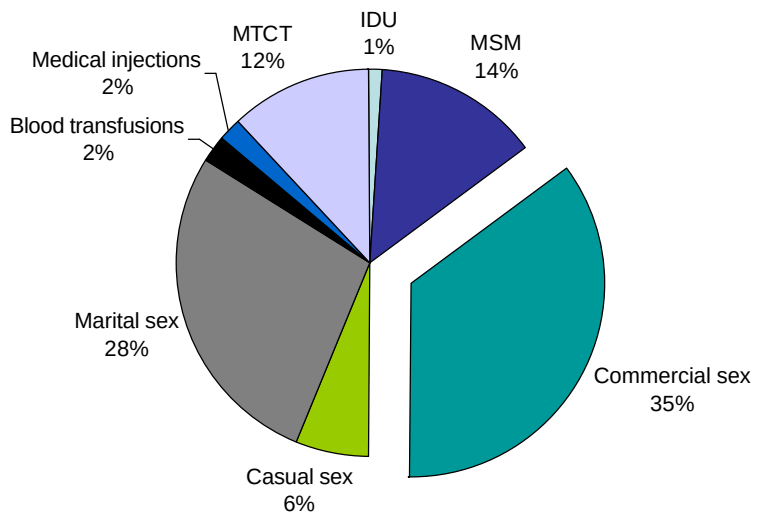


Figure 3: Net Prevention Cost per Infection Averted under Universal Access

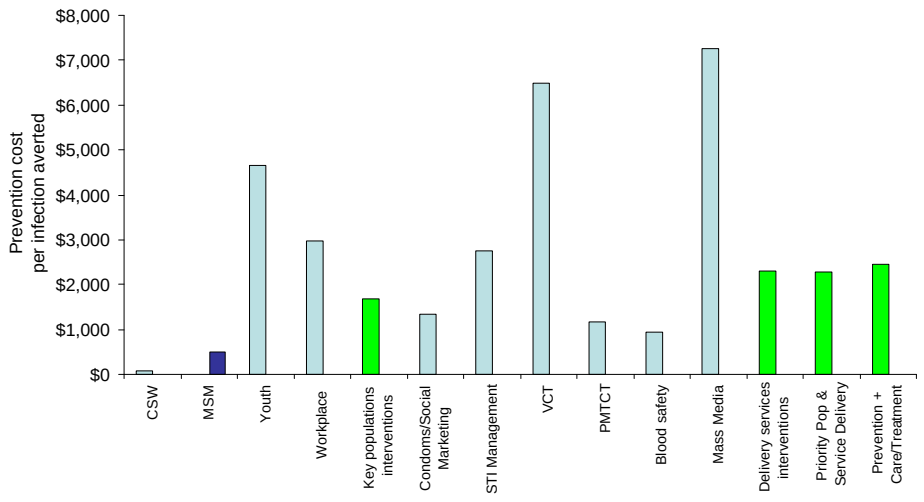


Figure 4: Number of Infections Averted as per Different Scenarios

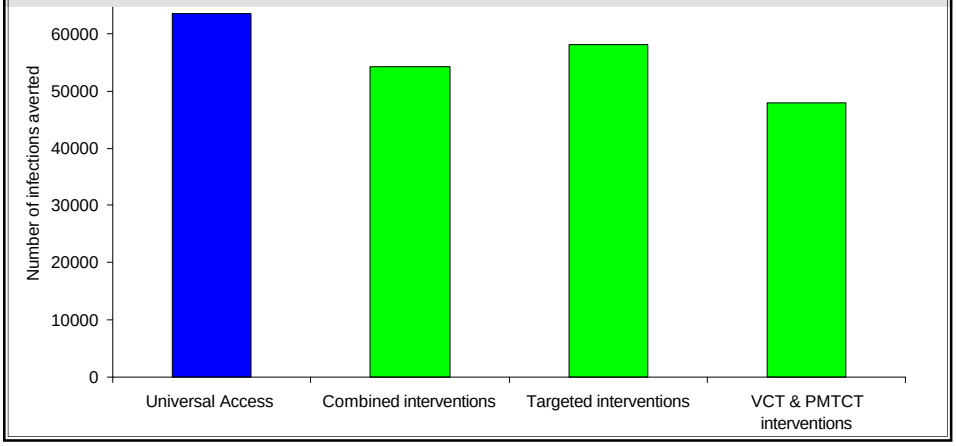


Figure 5: Comparative Net Prevention Cost per Infection Averted

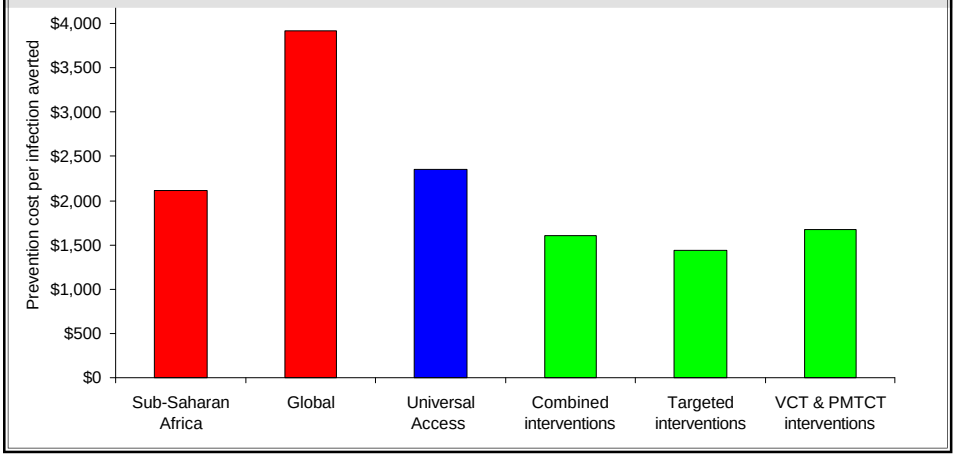
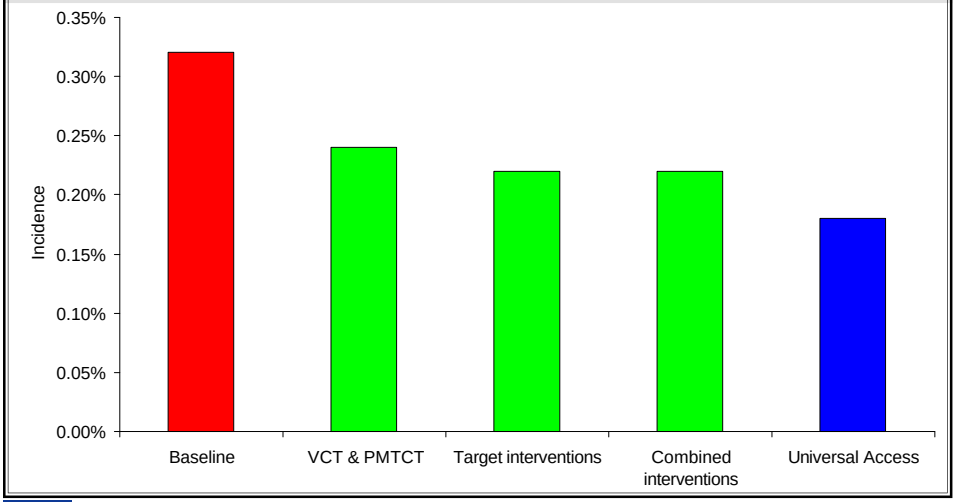


Figure 6: Incidence in Final Year as per Different Scenarios



Impact of Universal Access

Prevention interventions among specific priority populations

Commercial sex workers

The intervention with the most impact is peer-to-peer education among sex workers (SW) resulting in a sharp decline of new infections (30%) with 24,000 infections averted at a unit cost of $85 per infection averted, with incidence and prevalence reduction of 19% and 7%, respectively. This targeted intervention provides a high return on investment.

Men who have sex with men

If 0.5% of the male population 15-49 engages in “same-sex/sex”, the decline of new infections would be 2%, as a result of prevention. However, this activity would avert sevem times less infections than that of SW intervention but with a net prevention cost per infection averted six times higher.

However, if 2% of the male population 15-49 engages in “same-sex/sex”, then the magnitude of the epidemic drastically changes with an additional 84,000 new infections added to the baseline.

Therefore, it is imperative to correctly estimate the size of priority populations, particularly where risk and vulnerability converge. For example, the WAPCAS study revealed that close to 20% of MSM were either married, separated, or divorced. Underestimating the size of key populations such as MSM can result in a flawed epidemiological profile of the HIV epidemic.

Youth

On the one hand, teacher training for “in-school youth” results in a 15% decline in new infections due to casual sex. In

addition, the long-term impact of youth counseling can not be measured in the short term since the majority of these "in-school youth" are not yet sexually active. The benefit of such a strategy is delayed until they all become sexually active.

On the other hand, peer-to-peer education for out-of-school youth results in a minimal number of new infections averted (117) at enormous net prevention cost per infection averted ($52,495). Even with high coverage (80%), although the decline of new infections among casual sex is 9%, the net prevention cost per infection averted remains unchanged.

However, by combining in-school and out-of-school youth interventions, the net prevention cost per infection averted declines significantly, therefore, suggesting that out-of-school youth interventions can be a complement to "in-school" activities. However, when compared with SW interventions, youth interventions results in nine times fewer infections averted at a net prevention cost per infection averted that is 28 times more.

The intervention with the most impact is peer-to-peer education among sex workers.

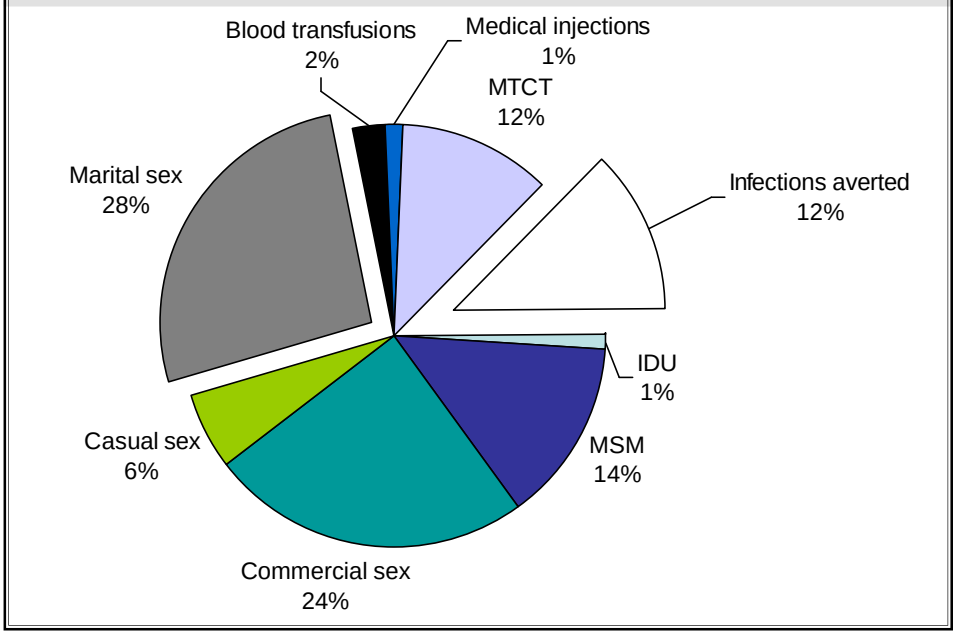
Workplace

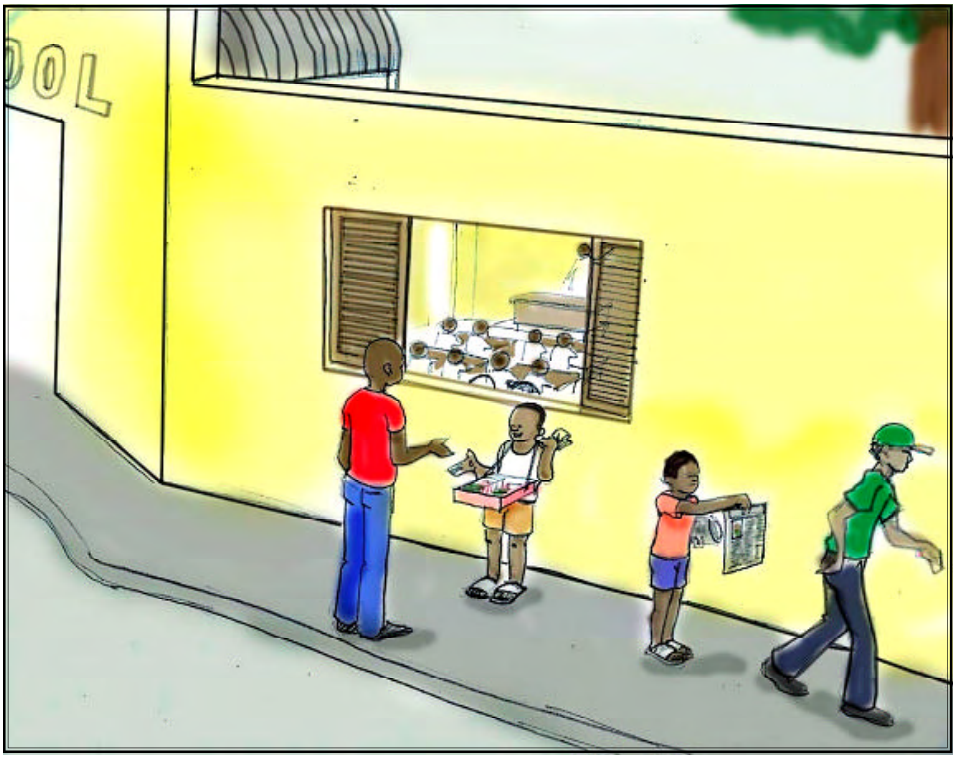
Workplace programs do provide, in spite of their high cost, a sharp decline in the number of new infections (10%). Nevertheless, when compared with SW prevention interventions, while averting almost as many infections, the net prevention cost per infection averted is 35 times more expensive. As a result, such an intervention requires the collaboration of the business and industrial sectors.

Combined interventions among priority populations

The combined interventions among priority populations significantly improve the effectiveness of individual interventions. Because of the interaction between different groups, each group benefits from the various targeted interventions. For example, while interventions specifically

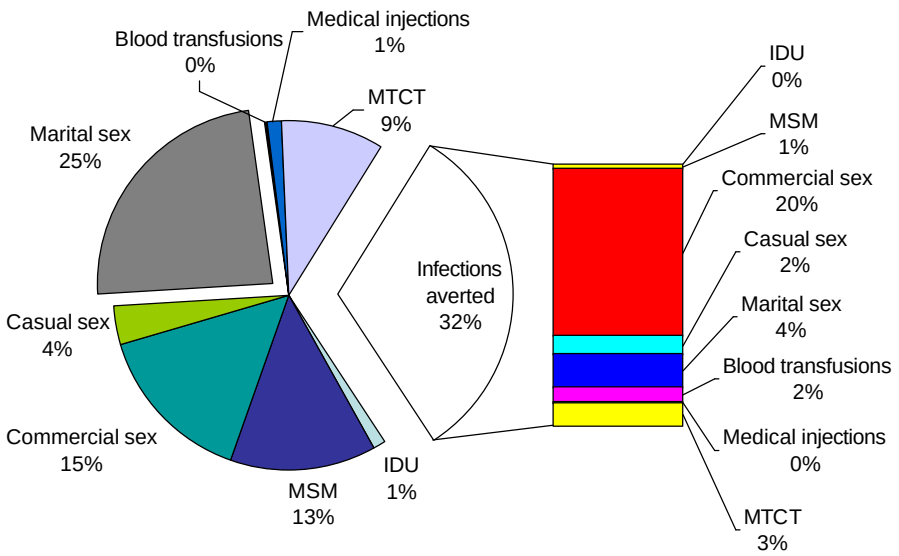
Figure 7: New infections by group and infections averted due to SW interventions





Although youth counseling affects future behavior change, its impact can not be measured over the life span of NSF-II and, therefore, results in the least rewarding of all interventions.

Figure 8: New Infections and Infections Averted Due to Combined Interventions



directed at SW reduce the number of infections among this group by 30%, combined interventions reduce infections among the same group by 47%. As a result, the pattern of transmission also changes.

Prevention interventions in service delivery

Condom provision social marketing

The decline in the number of new infections of 9% to 23% among sex workers, and 7% to 19% among casual sex confirms that condom provision is always an effective prevention intervention, particularly in high-risk contacts. Nevertheless, providing condoms alone without peer-to-peer education and mass media campaigns is less effective

STI management

The presence of STI in a sexual contact enhances the probability of infection of HIV. However, the decline in the number of new infections of 11% to 14% among sex workers, and 5% to 7% among casual sex, confirms that treatment of STI is a critical component of prevention interventions. Nevertheless, it is more effective when integrated with condom use and other peer-to-peer education directed at priority populations, such as sex workers, men who have sex with men, and workplace programs.

Voluntary counseling and testing (VCT)

Considering the low HIV prevalence in Ghana, most people who seek VCT services are not living with HIV. Therefore VCT results in the highest prevention cost per infection averted, after out-of-school youth, and mass media.

As a result, many countries are adopting an opt-out strategy, which raises

issues related to confidentiality, human rights, stigma, etc. Nevertheless, Ghana may need to consider the opt-out approach in support of VCT scale-up services.

Prevention of mother-to-child transmission (PMTCT)

The decline in the number of new infections from mother to child (14%) explains why PMTCT is such a key component of the Global Fund fifth call for proposals. However, when compared with prevention interventions among SW, PMTCT averts three times fewer infections at 14 times more the net prevention cost per infection averted. Nevertheless, its impact on child mortality is considerable, given its implications on the Millennium Development Goals.

Blood safety

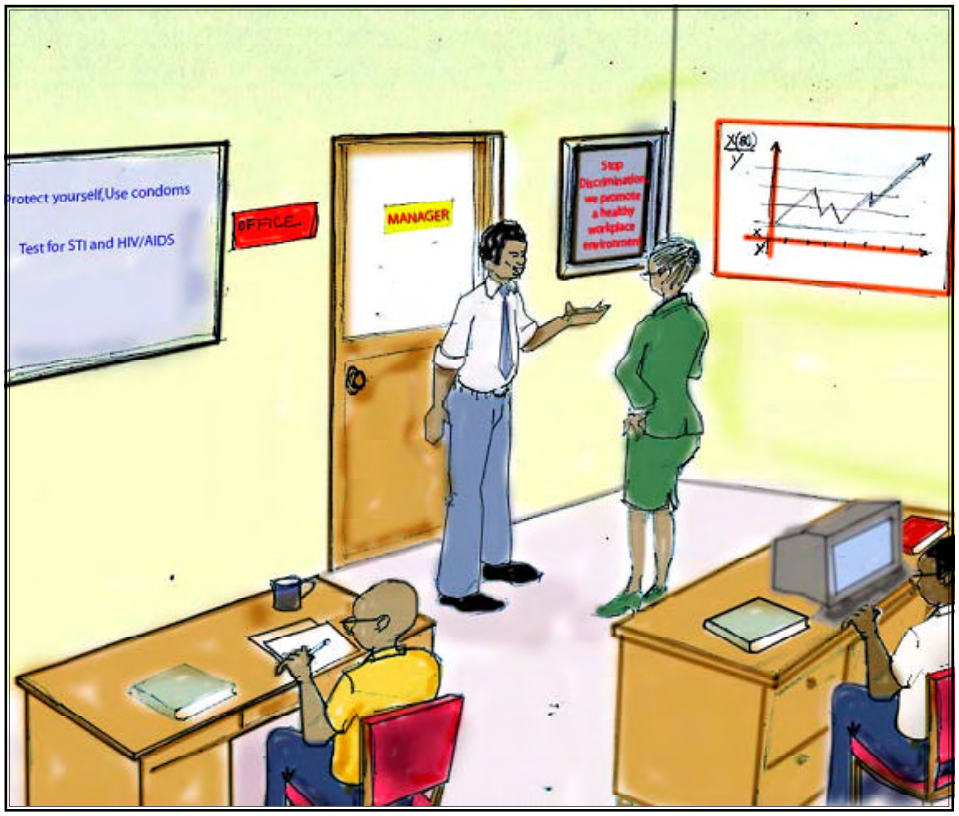
Blood and blood-related products are the direct and most efficient route of HIV transmission. In Ghana, blood safety is guaranteed by the National Blood Transfusion Service. Its impact on infections averted is enormous with 80% decline in the number of new infections from blood transfusion.

Mass media

The 1% to 4% decline in the number of new infections as a result of mass media campaigns suggest that this activity must always be linked to other intervention services in order to increase effectiveness.

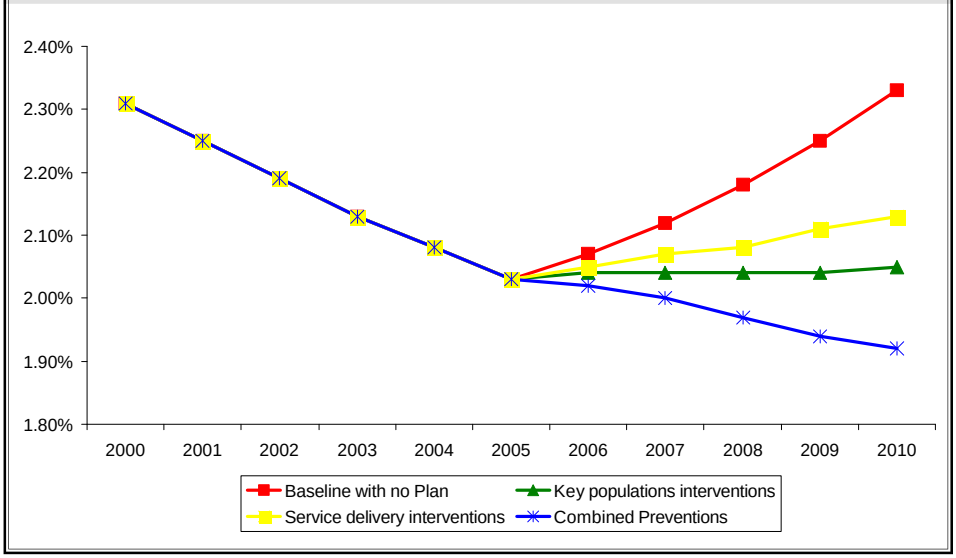
Combined interventions of service delivery

The combined interventions of service delivery are not as effective as the combined interventions directed at priority populations. Nevertheless, with a 16% reduction in the number of new infections, it contributes significantly to the decline of HIV in Ghana.



Although workplace programs avert almost as many infections as sex worker prevention interventions, the net prevention cost per infection averted is 35 times more

Figure 9: HIV Prevalence and Estimated Impact Due to Prevention Interventions



Combined interventions of prevention activities

The combined prevention interventions, targeting priority population and providing service delivery, are the most effective approach in the fight against HIV/AIDS. This combined approach averts 1.5 times more infections than those targeted at priority populations alone and twice as many as service delivery alone.

Care and Treatment

As a result of care and treatment, incidence increases by 16% and prevalence by 25%.

Combined interventions of prevention, care and treatment

Even though the actual number of new infections increases, incidence remains low at 0.19%. However, prevalence is the highest at 2.38%.

Prevention and care and treatment go hand in hand. Indeed, an effective prevention program reduces the risk of new infections and therefore reduces the pool of infected individuals with future needs for care and treatment. In a recent analysis (Stover et al., 2006), the authors acknowledged findings from an earlier study showing that, in sub-Saharan Africa, the number of people in need of treatment and care could be drastically reduced if comprehensive prevention programs were implemented.

Policy environment

If Ghana had a poor supportive policy environment, the number of new infections would increase among the various groups, thereby reducing by 3% the effectiveness of scaling-up toward universal access.

Impact of Current Commitments

If scaling-up toward Universal Access reduces incidence by 43%, what will be the reduction under current commitments?

Combined interventions

For every 10 infections averted under the universal access scenario, it is possible to avert about 8 infections with current commitments, with half the yearly budget ($52 million vs. $110 million), at 70% the net prevention cost per infection averted ($1,601 vs. $2,461).

Even with limited resources, it is possible to obtain, through strategic resource allocation decision making, a good return on investment.

It is important to note, however, that funding allocated for care and treatment under current commitment secures 61% coverage as opposed to 100% under universal access. Furthermore, incidence reduction under universal access is 43% against 30% with current commitments.

Targeted Interventions

With limited resources, targeting high impact prevention interventions, such as sex workers, men who have sex with men, blood safety, mother-to-child transmission, condom provision, STI treatment, and teacher training, is more effective than combining all other interventions (58,000 infections averted versus 54,000).

Furthermore, with a 32% incidence reduction, the net prevention cost per infection averted is substantially lower ($1,434 versus $1,601).

It is important to note, however, that targeting high-impact interventions at the expense of other programs such as VCT, out-of-school youth, and workplace, is politically sensitive. In addition, it could, in the long run, revert the short-term benefits of targeted interventions.

VCT and PMTCT interventions

If, due to commitments to various donors, the majority of the prevention activities (60%) are earmarked for VCT and PMTCT , then the remaining resources available for all other prevention activities are not sufficient, resulting in a shortage of coverage of other service delivery and priority populations interventiions, and a less efficient allocation of resources: higher unit cost ($1680), reduced number of infections averted (48,000), and reduced incidence reduction (24%).

Linkages between Care/ Mitigation and Prevention

Prevention and care and treatment go hand in hand in the fight against HIV/AIDS.

As discussed in the Goals Manual, greater provision of care will, in general, reduce stigma and create a more positive environment for prevention programs, while a lack of care will do the opposite.

On the other hand, the availability of HAART can lead some people to adopt risky behavior in the belief that AIDS is a treatable condition. A recent literature review discussed ten different possible linkages between care/mitigation and prevention (Bollinger, et.al):

1) Reducing stigma may increase utilization of VCT services, thus slowing transmission.

2) Reducing stigma may reverse marginalization of risk groups, decreasing transmission risk for those risk groups, as well as the general population.

3) Providing VCT centers may slow transmission via behavior change on behalf of counseled people.

4) Providing care within a community may promote a sense of identification and solidarity, resulting in reduced transmission. Providing care also prolongs the life of PLHIVs, who make effective advocates for prevention activities.

5) Providing HAART may increase HIV transmission, as risky behavior increases due to reduced perception of risk.

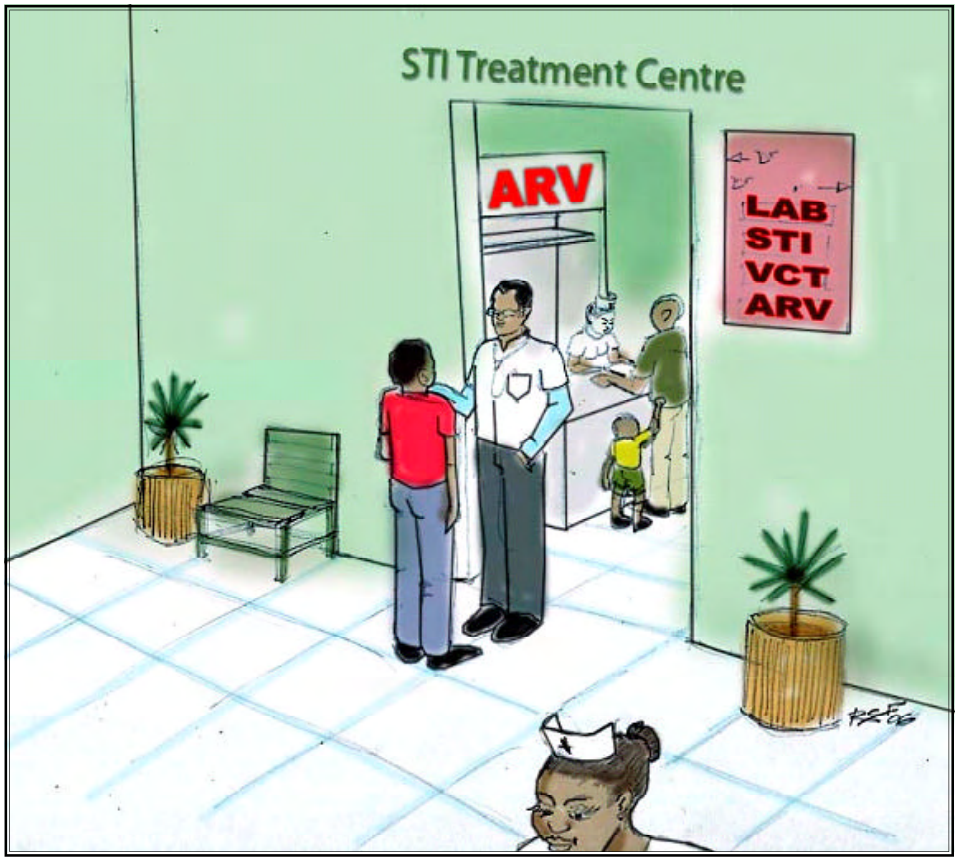
6) Although providing HAART reduces viral load, it is not clear that infectivity is reduced; at this point, the net transmission effect is unknown.

7) One possible effect that might speed transmission is the increase in drug-resistant HIV strains that arise through taking HAART.

8) Providing care also lengthens the duration of illness, particularly at the later stages, thus potentially increasing transmission.

9) Mitigating orphans' circumstances may reduce transmission by preventing their sexual exploitation.

10) Mitigating the circumstances of PLHIVs may reduce transmission by reducing the social vulnerability of their families, and allowing them to continue to be productive economically.



Prevention, care and treatment go hand in hand in the fight against HIV/AIDS.

Impact of Resource Allocation Decision Making

What is the impact of allocating resources on key HIV/AIDS indicators?

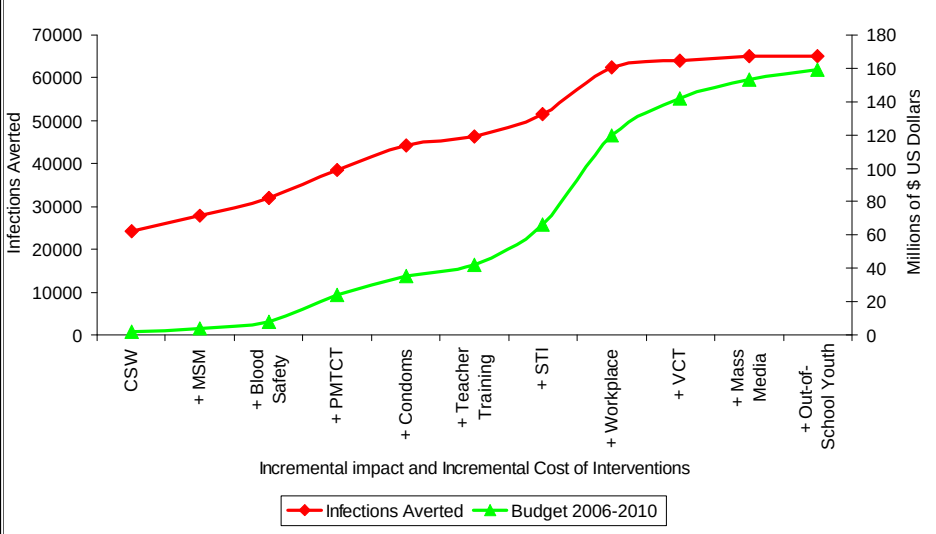
If Ghana was able to mobilize, over the lifespan of the NSF-II, US $550 million for the development and implementation of a package for HIV prevention, treatment and care, with the aim of coming as close as possible to the goal of universal access, and reaching the Millennium Development Goals on HIV/AIDS, then perhaps resource allocation decision making would not be an issue.

As a result, more than 63,000 infections would be averted at a net prevention cost per infection averted of US $2,350, with a 43% decline of HIV incidence.

Let us review the indicators presented on Table 1. This table illustrates the individual impact of each specific intervention.

For example, allocating resources to SW only averts 24,000 infections

Figure 10: Incremental Impact of Interventions and Incremental Budget: 2006-2010



at a net prevention cost per infection averted of US$ 85, resulting in a 19% decline in incidence. On the other hand, combining interventions among priority populations by allocating resources simultaneously to SW, MSM, youth, and workplace avert 44,000 new infections at net prevention cost of US $1,592, resulting in a 33% decline in HIV incidence.

While this table presents a menu of various interventions with their individual impact and their overall combined impact, it does not tell us how to allocate resources or in which order they should be prioritized and scaled up.

For example, let us take a look at workplace programs. This particular intervention averts almost as many infections as the interventions directed at SW. It also averts more than twice as many infections as those averted by the other specific interventions. However, the net prevention cost per infections averted is 35 times more than the cost for SW and is certainly higher than most other interventions. Is workplace program a cost-effective intervention?

How should we prioritize and how should we allocate resources if we are confronted with limited resources?

To answer these questions, we created two tables.

First, we sorted the indicators by order of ascending unit cost (Table 2) and assessed the additive impact of an intervention over the previous ones.

For example, adding MSM interventions to SW interventions raise the number of infections averted from 24,000 to 28,000, at a combined unit cost per infection averted of US$138, at a combined budget of US $4 million dollars.

Adding blood safety to MSM and SW raise the number of infections averted from 28,000 to 32,000, at a combined unit cost per infection averted of US$252, at a combined budget of US$ 8 million. And so on.

However, once we reached the first US $66 million dollars, the next intervention (workplace program) almost doubles the budget to US $120 million, while adding only an additional 10,000 infections averted to the previous 52,000 infections averted with the other combined interventions (Figure 10).

Furthermore, adding another US $40 million only averts an additional 3,000 infections. This table demonstrates that resource allocation decision making must be guided by evidence-based information.

Second, we sorted the indicators by the number of infections averted (Table 3),

Table 1: Comparison of key indicators in final year of NSF-II

Interventions	Key indicators: Infections averted	Key indicators: Unit Cost $US dollars	Key indicators: Incidence	Key indicators: Prevalence	Reduction: Incidence	Reduction: Prevalence
Universal Access Scenario						
Priority Populations						
CSW	24,285	85	0.26	2.16	18.8	7.3
MSM	3,602	489	0.31	2.30	1.1	2.3
Youth	2,676	4,644	0.31	2.31	3.1	0.9
Teacher training	2,616	2,390	0.31	2.31	3.1	0.9
Youth out-of-school	117	52,495	0.32	2.33	0.0	0.0
Workplace	17,906	2,975	0.28	2.21	12.5	5.2
Combined interventions	*43,778*	*1,592*	*0.22*	*2.02*	*32.5*	*13.2*
Service Delivery						
Condoms/Social Mark.	8,410	1,340	0.30	2.27	6.3	2.6
STI Management	8,962	2,742	0.30	2.27	6.3	2.6
VCT	3,381	6,497	0.31	2.31	3.1	0.9
PMTCT	6,976	1,158	0.31	2.30	3.1	1.3
Blood safety	4,517	936	0.31	2.30	3.1	1.3
Mass Media	1,490	7,250	0.32	2.32	0.0	0.4
Combined interventions	*31,475*	*2,310*	*0.25*	*2.13*	*22.1*	*8.6*
Priority Populations & Service Delivery	*65,067*	*2,199*	*0.17*	*1.90*	*45.5*	*18.7*
Care and treatment	-12,037		0.37	2.92	-15.4	-25.2
Prevention + Care and Treatment	*63,444*	*2,350*	*0.18*	*2.35*	*42.8*	*-1.0*
Current Commitments Scenarios						
Combined interventions	54,270	1,601	0.22	2.45	30.0	-5.0
Targeted interventions	58,090	1,434	0.22	2.43	31.9	-4.3
VCT & PMCTC	47,970	1,680	0.24	2.51	24.4	-7.6
Other References						
Ghana Baseline			*0.32*	*2.33*		
Sub-Saharan Africa		*2,109*				
Global		*3,923*				

starting with the intervention with the most infections averted (SW) down to the intervention with the least infections averted (out-of-school youth), regardless of the unit cost per infection averted.

Similarly, we assessed the additive impact of an intervention over the previous ones

What is striking in this second analysis is the fact that adding workplace programs to SW interventions raises the budget from US $2 million to US $56 million, without doubling the number of infections averted, from 24,000 to 39,000, while raising the unit cost 16 times, from US $85 to US $1,433.

Table 2: Incremental impact of interventions sorted by ascending unit cost

Interventions			Infections Averted 2006-2010			Unit cost			Cumulative Impact			Variance			Budget 2006-2010 (Million of USD)	
	Coverage		Targeted	Combined		Targeted	Average		Incidence	Prevalence		Incidence	Prevalence		Targeted	Cumulated
Baseline: No NSF-II									0.32	2.33						
CSW	90		24,285			*85*			0.26	2.16		18.8%	7.3%		2.1	
MSM	80		3,602	27,728		*489*	138		0.25	2.23		21.9%	4.3%		1.8	3.8
Blood safety	96		4,517	31,974		*936*	252		0.24	2.10		25.0%	9.9%		4.2	8.1
PMTCT	80		6,976	38,515		*1,158*	533		0.23	2.08		28.1%	10.7%		16.3	24.4
Condoms/Social M.	23		8,410	44,294		*1,340*	693		0.22	2.04		31.3%	12.4%		11.3	35.6
Teacher training	91		2,616	46,223		*2,390*	785		0.21	2.02		34.4%	13.3%		6.3	41.9
STI Management	61		8,962	51,545		*2,742*	1,132		0.20	1.99		37.5%	14.6%		24.6	66.5
Workplace	63		17,906	62,338		*2,975*	1,725		0.18	1.91		43.8%	18.0%		53.6	120.1
VCT	15		3,381	63,902		*6,497*	1,996		0.18	1.90		43.8%	18.5%		22.0	142.1
Mass Media	21		1,490	65,041		*7,250*	2,114		0.17	1.90		46.9%	18.5%		10.8	152.9
Youth out-of-school	6		117	65,067		*52,495*	2,199		0.17	1.90		46.9%	18.5%		6.2	159.1

Table 3: Incremental impact of interventions sorted by descending number of infections averted

Interventions			Infections Averted 2006-2010			Unit cost			Cumulative Impact			Variance			Budget 2006-2010 (Million of USD)	
	Coverage		Targeted	Combined		Targeted	Average		Incidence	Prevalence		Incidence	Prevalence		Targeted	Cumulated
Baseline: No NSF-II									0.32	2.33						
CSW	90		*24,285*			85			0.26	2.16		18.8%	7.3%		2.1	
Workplace	63		*17,906*	38,704		2,975	1,433		0.23	2.06		28.1%	11.6%		53.6	55.7
STI Management	61		*8,962*	43,456		2,742	1,841		0.22	2.03		31.3%	12.9%		24.6	80.3
Condoms/Social M.	23		*8,410*	47,821		1,340	1,908		0.21	2.00		34.4%	14.2%		11.3	91.6
Mass Media	21		*1,490*	49,100		7,250	2,078		0.21	1.99		34.4%	14.6%		10.8	102.4
PMTCT	80		*6,976*	55,109		1,158	1,903		0.20	1.97		37.5%	15.5%		16.3	118.7
Blood safety	96		*4,517*	59,074		936	1,853		0.19	1.94		40.6%	16.7%		4.2	122.9
MSM	80		*3,602*	62,283		489	1,792		0.18	1.91		43.8%	18.0%		1.8	124.7
VCT	15		*3,381*	63,855		6,497	2,061		0.18	1.90		43.8%	18.5%		22.0	146.6
Teacher training	91		*2,616*	65,041		2,390	2,114		0.17	1.90		46.9%	18.5%		6.3	152.9
Youth out-of-school	6		*117*	65,067		52,495	2,199		0.17	1.90		46.9%	18.5%		6.2	159.1

This table clearly demonstrates that cost conscious program managers need to be strategically informed during the resource allocation decision making process.

Nevertheless, cost-effectiveness is never the only element in resource allocation decision making, for there are other critical issues such as national interest, equity, policy, operational barriers, etc.

These issues play a critical role in the process and frequently over-ride the cost-effectiveness approach.

Based on the results of this analysis, it can be inferred that intervening with priority populations such as SW and MSM, securing the blood supply, preventing mother-to-child transmission, providing condoms, training teachers, and treating STIs are, for Ghana, the most cost-effective interventions when faced with limited resources.

Although workplace programs, VCT, mass media, and out-of-school youth interventions can not be ignored, program managers need to understand that these interventions substantially add to the program budget and therefore require innovative approaches and solutions for their implementations.

Impact of gap

The different allocation scenarios show the following (Table 1):

The number of infections averted under current commitments range from 48,000 to 58,000, against 63,000 under the universal access scenario.

The prevention cost per infection averted under current commitments ranges from $1,434 to $1,680, against $2,350 under the universal access scenario. As a comparison, the prevention cost per infection averted is estimated to be $2,109 for sub-Saharan Africa and $3,923 at the global level, but for the period 2005-2015 (Stover et. al.).

While averting 8% more infections under Universal Access, the net prevention cost per infection averted is 39% higher. Scaling-up toward universal access provides equity, but on the other hand, bears a much higher cost.

Nevertheless, this additional cost is likely to be compensated by savings from the lifetime treatment cost due to averted future treatment and care, which is $3,469 for sub-Saharan Africa and $4,707 at the global level for the period 2005-2015 (Stover et. al).

If this lifetime treatment cost is applied to Ghana, more than $1000 could be saved per infection averted as a result of averting future treatment and care.

Implications

Recently, Ghana successfully mobilized additional resources to scale-up access to treatment and care services.

As a result, averted deaths have reduced the number of orphans. However, the availability of HAART may lead some people to adopt risky behavior, as they return to active sexual life.

While the resources allocated for care and treatment (53%) under current commitments provide substantial coverage (63%), the same can not be said for prevention activities. The remaining 47%, under which 33% is earmarked for prevention activities, is not enough to increase coverage for all other interventions targeted at priority populations and service delivery.

The financial gap existing between the universal access scenario and the current commitment is translated into a coverage deficit in prevention activities. This gap results in an increase in the number of new infections that will need to be covered by future lifetime treatment costs, therefore raising the cost of scaling up toward universal access.

How do we achieve equity when there is a funding shortfall? This is indeed a difficult proposition to consider. The program needs for the various implementers are many and diverse. Therefore, all partners need to be engaged in a policy dialogue to address resource allocation or re-allocation issues within the context of satisfying various constituencies as well as the national interest. This calls for increasing the share of resources available to the GAC and partner institutions to enable them to carry out the very important work of prevention interventions. However, such efforts and activities must be linked to the HIV/AIDS services being put into place in the context of implementing a decentralized response.

Mobilizing additional resources today is critical in implementing NSF-II to avert higher future treatment costs.

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